

IN THE CLAIMS

37. (Amended) A superconducting magnetic energy storage, SMES, device comprising:

- a switch configured to short circuit a coil; and
- said coil configured to be connected in series with a voltage source and wound from a superconducting cable, said coil including
 - a superconductor maintained at cryogenic temperatures below a critical temperature during use, and
 - an electrical insulation configured to surround said superconducting material, wherein said electrical insulation including
 - an inner layer of semiconducting material electrically connected to said superconductor,
 - an outer layer of semiconducting material held at a controlled electric potential along a length of said outer layer of semiconducting material, and
 - an intermediate layer of a solid electrically insulating material positioned between said inner layer of semiconducting material and said outer layer of semiconducting material.

62. (Amended) A high voltage system, comprising:

- a superconducting magnetic energy storage, SMES, device having a superconductor insulated against a high voltage by an electric insulation system arranged concentrically around said superconductor.

73. (Amended) The high voltage system according to claim 62, wherein said insulation system comprises:

- an inner semiconductor part in electric contact with said superconductor including at least one of a cellulose-based, synthetic paper and a non-woven fibre material being co-lapped with a synthetic film,

an electrically insulating intermediate part, and

an outer semiconducting part around said electrically insulating intermediate part.

74. (Amended) The high voltage system according to claim 62, wherein said insulation system comprises:

an inner semiconductor part in electric contact with said superconductor including at least one of a cellulose-based, synthetic paper and a non-woven fibre material being laminated with a synthetic film,

an electrically insulating intermediate part, and

an outer semiconducting part around said electrically insulating intermediate part.

79. (Amended) A superconducting magnetic energy storage, SMES, device comprising:

a switch configured to short circuit a coil; and

said coil configured to be connected in series with a voltage source and wound from a superconducting cable, said coil including

means for superconducting maintained at cryogenic temperatures below a critical temperature during use, and

means for electrically insulating said means for superconducting, including

an inner layer of a semiconducting material electrically connected to said means for superconducting;

an outer layer for semiconducting material held at a controlled electric potential along a length thereof, and

an intermediate layer of a solid electrical insulation positioned between said inner layer and said outer layer.